



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/707,507

12/18/2003

Lu Fu-Chin

22171-00011-US

1506

30678

7590

05/06/2004

CONNOLLY BOVE LODGE & HUTZ LLP
SUITE 800
1990 M STREET NW
WASHINGTON, DC 20036-3425

EXAMINER

NGUYEN, JIMMY

ART UNIT

PAPER NUMBER

2829

DATE MAILED: 05/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	10/707,507		FU-CHIN, LU	
	Examiner		Art Unit	
	Jimmy Nguyen		2829	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>0504</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 – 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morton et al (US 3963986) in view Akram et al (US 6246245).

As to claim 1, Morton et al discloses (figs 2 and 7) an integrated circuit probe card comprising:

a circuit board (9 and 7, see figure 7) consisting a plurality of laminated boards (60 – 64, and 7, see figure 7) and having an upper surface (surface with capacitors 24, fig 7) and a bottom surface (surface with interface, see figure 7), comprising:

a plurality of testing pads (31B, see fig 2) provided on the upper surface (surface with capacitors 24, fig 7) and separated by a second pitch (the distance between the conductive pad 31B) , and being able to be electrically connected (throughout the conductor 11) to a test machine (not shown, but must present to process the testing) directly; and

a plurality of conductive wires (the conduct wire that connect the conductive pads 31B and run inside the boards 7 and 9, see fig 2) provided inside the circuit board (9 and 7) for connecting the testing pads (31A) to the bottom surface (surface with interface, see figure 7); and

a plurality of probes (31) separated by a first pitch (distance between the probes 31) and being electrically connected to the conductive wires (wires that connect the conductive pads 31A and 31B).

However, Morton et al are silent on the following limitation:

The first pitch is smaller than the second pitch.

On the other hand, Akram et al teach (fig 6A) the first pitch (P1) is smaller than the second pitch (P3).

It would have been obvious to one having an ordinary skill in the art at the time of the invention was made to replace the pitch dimensions of Akram et al for the pitch dimension of Morton et al for benefit of testing dense arrays of die contacts (column 7 line 14 of Akram et al).

As to claim 2, Morton et al discloses (figs 2 and 7) the integrated circuit probe card of Claim 1 , wherein the circuit board (7 and 9) is constituted by tightly stacking up a plurality of laminated boards (60 – 64, and 7, see figure 7).

As to claim 3, Morton et al discloses (figs 2 and 7) the integrated circuit probe card of Claim 1 , wherein the circuit board (7 and 9, see fig 7) can further comprises a plurality of electronic devices (24, 24A) provided on the upper surface (surface with capacitors 24, fig 7) for processing testing signals.

As to claim 4, Akram et al discloses (fig 6A) the integrated circuit probe card of Claim 1 , wherein the first pitch (P1) is smaller than 400 micrometer (only 2 mils = 50.8 micron, column 7 line 12 – 13).

As to claim 5, Morton et al discloses (figs 2 and 7) the integrated circuit probe card of Claim 1 , wherein the plurality of probes (31) are directly in contact with the conductive wires (11).

As to claim 6, Akram et al discloses (fig 6A) the integrated circuit probe card of Claim 1 , wherein the first pitch (P1) is approximately the same (the pins contact 22 must have the pitch with device under test 14 in order the transmit and process the testing signal) as the pitch between signal pads (pads on IC 14) of an integrated circuit device under test (14).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jimmy Nguyen at (703) 306-5858. Any inquiry of a general nature of relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-4900.



JN.
May 1, 2004